

CLAIM AMENDMENTS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of effecting a smooth transition between adjacent digital information bursts transmitted in different modulation formats, the method comprising:
selecting a first code sequence for a first digital symbol burst to be transmitted, which first sequence comprises a set of end symbols with a first particular symbol pattern;
selecting a second code sequence for a second digital symbol burst to be transmitted after the first digital symbol burst, which second sequence comprises a set of start symbols with a second particular symbol pattern;
modulating, by a modulator, the first digital symbol burst in a first modulation format;
modulating the second digital symbol burst in a second modulation format different than the first modulation format; and
transmitting the modulated first and second digital symbol bursts, the transmission of the second digital symbol burst starting upon completion of the transmission of the first digital symbol burst at an instant so selected that transmission of the end set of bits of the first code sequence is synchronized in time with the start set of bits of the second code sequence.
2. (Currently Amended) ~~A method as claimed in~~ The method of claim 1, wherein the instant is a point in time where the first particular symbol pattern and second particular symbol pattern are closely matched according to one or more criteria.

3. (Currently Amended) ~~A method as claimed in~~ The method of claim 2, wherein:
the first and second digital symbol bursts each have a respective amplitude and phase;
and
the criteria comprise a close match between at least one of the amplitude of the first and
second symbol bursts and the phase of the first and second symbol bursts.
4. (Currently Amended) ~~A method as claimed in~~ The method of claim 2 or 3, wherein:
the amplitudes of the first and second symbol bursts each have a respective rate of
change; and
the criteria comprise a close match between the rate of change in amplitude of the first
and second symbol bursts.
5. (Currently Amended) ~~A method as claimed in any preceding claim,~~ The method of
claim 1, 2, or 3, wherein the first and second code sequences are transmitted such that at least
one bit of the end set of symbols of the first sequence is transmitted in a guard period between
the first and second sequences, and at least one symbol of the start set of the second sequence is
transmitted in the guard period.
6. (Currently Amended) ~~A method as claimed in any preceding claim,~~ The method of
claim 1, 2, or 3, wherein the first digital symbol burst comprises information representing a voice
signal.
7. (Currently Amended) ~~A method as claimed in any preceding claim,~~ The method of
claim 1, 2, or 3, wherein the second digital symbol burst comprises information representing a
data signal.
8. (Currently Amended) ~~A method as claimed in any preceding claim,~~ The method of
claim 1, 2, or 3, wherein the first digital symbol burst is modulated in a Gaussian ~~Minimum~~
Minimum Shift Keying (GMSK) modulation format.

9. (Currently Amended) ~~A method as claimed in any preceding claim;~~ The method of claim 1, 2, or 3, wherein the second digital symbol burst is transmitted in an 8-ary phase shift keying (8PSK) modulation format.

10. (Original) An apparatus for effecting a smooth transition between adjacent digital information bursts transmitted in different modulation formats, the apparatus comprising:
means for selecting a first sequence for a first digital symbol burst to be transmitted, which first sequence comprises a set of end symbols with a particular symbol pattern;
means for selecting a second sequence for a second digital symbol burst to be transmitted after the first digital symbol burst, which second sequence comprises a set of start symbols with the particular symbol pattern;
means for modulating the first digital symbol burst in a first modulation format and for modulating the second digital symbol burst in a second modulation format different than the first modulation format; and
means for transmitting the modulated first and second digital symbol bursts, the transmission of the second digital symbol burst starting upon completion of the first digital information symbol at an instant so selected that transmission of the end set of bits of the first code sequence is synchronized in time with the start set of bits of the second code sequence.

11. (Currently Amended) ~~An apparatus as claimed in~~ The apparatus of claim 10, wherein the means for transmitting the modulated first and second digital symbol bursts is arranged to transmit the first and second sequences such that at least one bit of the end set of symbols of the first sequence is transmitted in a guard period between the first and second sequences, and at least one symbol of the start set of the second sequence is transmitted in the guard period.

12. (Currently Amended) ~~An apparatus as claimed in~~ The apparatus of claim 10 or 11, wherein the first digital symbol burst comprises information representing a voice signal.

13. (Currently Amended) ~~An apparatus as claimed in claim 10, 11 or 12,~~ The apparatus of claim 10 or 11, wherein the second digital symbol burst comprises information representing a data signal.

14. (Currently Amended) ~~An apparatus as claimed in any of claims 10 to 13,~~ The apparatus of claim 10 or 11, wherein the means for modulating is arranged to modulate the first digital symbol burst in a Gaussian Minimum Shift Keying (GMSK) modulation format.

15. (Currently Amended) ~~An apparatus as claimed in any of claims 10 to 14,~~ The apparatus of claim 10 or 11, wherein the means for modulating is arranged to modulate the second digital symbol burst in an 8-ary phase shift keying (8PSK) modulation format.

16. (Currently Amended) A method of effecting a smooth transition between consecutive sequences of digital information transmitted in different modulation formats, the method comprising:

- selecting a first sequence of digital information to be transmitted with a first phase and a first amplitude in a radio signal;

- selecting a second sequence of digital information to be transmitted with a second phase and a second amplitude in the radio signal;

- transmitting, ~~by a transmitter,~~ the first sequence of digital information ~~burst~~ in a first modulation format; and

- transmitting the second sequence of digital information ~~burst~~ in a second modulation format different than the first modulation format, the transmission of the second sequence starting before completion of the first sequence at an instant so selected to minimize the respective differences between the first and second phases and the first and second amplitudes.

17. (Currently Amended) An apparatus for effecting a smooth transition between consecutive sequences of digital information transmitted in different modulation formats, the apparatus comprising:

means for selecting a first sequence of digital information to be transmitted with a first phase and a first amplitude in a radio signal and for selecting a second sequence of digital information to be transmitted with a second phase and a second amplitude in the radio signal; and

means for transmitting the first sequence of digital information [[burst]] in a first modulation format[[,]] and for transmitting the second sequence of digital information [[burst]] in a second modulation format different than the first modulation format, the transmission of the second sequence starting before completion of the first sequence at an instant [[so]] selected to minimize the respective differences between the first and second phases and the first and second amplitudes.

18. (Currently Amended) An apparatus for processing digital symbols prior to transmission of the symbols in two different modulation formats, the apparatus ~~comprising~~ comprising:

means for selecting from a set of symbols some of the symbols for modulation in a first modulation format and for selecting others of the symbols for modulation in a second modulation format different than the first modulation format;

means for modulating the said some symbols in accordance with the first modulation format and for modulating the said others of the symbols in accordance with the second modulation format; and

means for outputting the symbols as bursts for transmission, in which outputting means the burst of symbols in the first modulation format is separated from the burst of symbols in the second modulation format by a guard period comprising guard symbols that include at least one end symbol of the burst of symbols in the first modulation format and at least one symbol of the burst of symbols in the second modulation format.

19. (Currently Amended) ~~An apparatus as claimed in~~ The apparatus of claim 18, wherein the outputting means comprises a look-up table contains information regarding combinations of end symbols of the first modulation format start symbols of the second modulation format, and relative timings of the start and end symbols, the apparatus further comprising:

means for conditioning the symbols prior to transmission, which conditioning comprises introducing an advance or a delay to either or both of the burst of symbols in the first modulation format and the burst of symbols in the second modulation format depending on the timing information in the look-up table.

20. (Currently Amended) ~~An apparatus as claimed in~~ The apparatus of claim 18 or 19, wherein the conditioning means comprises:

an interpolator for interpolating the symbols; and
a pulse shaping filter for shaping the symbols prior to transmission.

21. (Currently Amended) ~~An apparatus as claimed in claim 18, 19 or 20;~~ The apparatus of claim 18 or 19, wherein the means for modulating comprises a first modulating path for modulating the said some symbols in accordance with the first modulation format and a second modulation path for modulating the said others of the symbols in accordance with the second modulation format.

22. (Currently Amended) ~~An apparatus as claimed in~~ The apparatus of claim 21, wherein each modulation path comprises:

a modulator for modulating the symbols in the respective one of the first or second modulation format; and
a buffer for buffering the modulated data from the modulator.

23. (Currently Amended) ~~An apparatus as claimed in~~ The apparatus of claim 22, wherein the outputting means comprises a selector for selecting symbols from the in the first modulation path or from the buffer in the second modulation path.

24. (Currently Amended) ~~An apparatus as claimed in any of claims 18 to 23,~~ The apparatus of claim 18 or 19, further comprising a radio modulating means for placing the burst of output symbols onto a radio frequency carrier for transmission.

25. (Canceled).

26. (New) A non-transitory computer readable medium storing instructions operable, when executed by a processor, to cause the processor to:

- select a first sequence of digital information to be transmitted with a first phase and a first amplitude in a radio signal;
- select a second sequence of digital information to be transmitted with a second phase and a second amplitude in the radio signal;
- transmit the first sequence of digital information in a first modulation format; and
- transmit the second sequence of digital information in a second modulation format different than the first modulation format,

wherein transmitting the second sequence begins before completing transmission of the first sequence and at a time selected to reduce a difference between the first phase and the second phase and to reduce a difference between the first amplitude and the second amplitude.

27. (New) The non-transitory computer readable medium of claim 26, wherein at least one bit of an end set of symbols of the first sequence is transmitted in a guard period between transmitting the first sequence and the second sequence, and wherein at least one symbol of a start set of symbols of the second sequence is transmitted in the guard period.

28. (New) An apparatus to receive signals, comprising:

a receiver configured to receive a radio signal that includes a first sequence of digital information with a first phase and a first amplitude and that further includes a second sequence of digital information with a second phase and a second amplitude, wherein the first sequence is transmitted using a first modulation format and the second sequence is transmitted using a second modulation format different than the first modulation format, wherein transmitting the second sequence begins prior to completing transmission of the first sequence, and wherein a time to begin transmitting the second sequence is selected to reduce a difference between the first phase and the second phase and to reduce a difference between the first amplitude and the second amplitude.

29. (New) The apparatus of claim 28, wherein at least one bit of an end set of symbols of the first sequence is transmitted in a guard period between transmitting the first sequence and the second sequence, and wherein at least one symbol of a start set of symbols of the second sequence is transmitted in the guard period.

30. (New) An apparatus to transmit signals, comprising:

a controller configured to select a first sequence of digital information to be transmitted with a first phase and a first amplitude in a radio signal and further configured to select a second sequence of digital information to be transmitted with a second phase and a second amplitude in the radio signal; and

a transmitter configured to transmit the first sequence of digital information in a first modulation format and further configured to transmit the second sequence of digital information in a second modulation format different than the first modulation format, wherein transmitting the second sequence begins prior to completing transmission of the first sequence and at a time selected to reduce a difference between the first phase and the second phase and to reduce a difference between the first amplitude and the second amplitude.

31. (New) The apparatus of claim 30, further comprising a modulator configured to modulate the first sequence using the first modulation format and further configured to modulate the second sequence using the second modulation format.

32. (New) A system to communicate signals over a wireless communication channel, comprising:

- a controller configured to select a first sequence of digital information to be transmitted with a first phase and a first amplitude in a radio signal and further configured to select a second sequence of digital information to be transmitted with a second phase and a second amplitude in the radio signal;

- a modulator configured to modulate the first sequence using a first modulation format and further configured to modulate the second sequence using a second modulation format different than the first modulation format; and

- a transmitter configured to transmit the modulated first sequence in the first modulation format and further configured to transmit the modulated second sequence in the second modulation format,

wherein transmitting the second sequence begins prior to completing transmission of the first sequence and at a time selected to reduce a difference between the first phase and the second phase and to reduce a difference between the first amplitude and the second amplitude.

33. (New) The system of claim 32, further comprising a receiver configured to receive the transmitted first sequence and the transmitted second sequence.